

PLANS OF PROPOSED
BRIDGES
MICHIGAN PROJECT I 75-4(14) 243
GRAYLING-INDIAN RIVER ROAD
GRAYLING TWP.-CRAWFORD CO.

Except where otherwise indicated on these Plans or in the Proposal and Supplemental Specifications contained therein, all materials and workmanship shall be in accordance with the Michigan State Highway Department's Standard Specifications for Road and Bridge Construction, 1960 Edition.

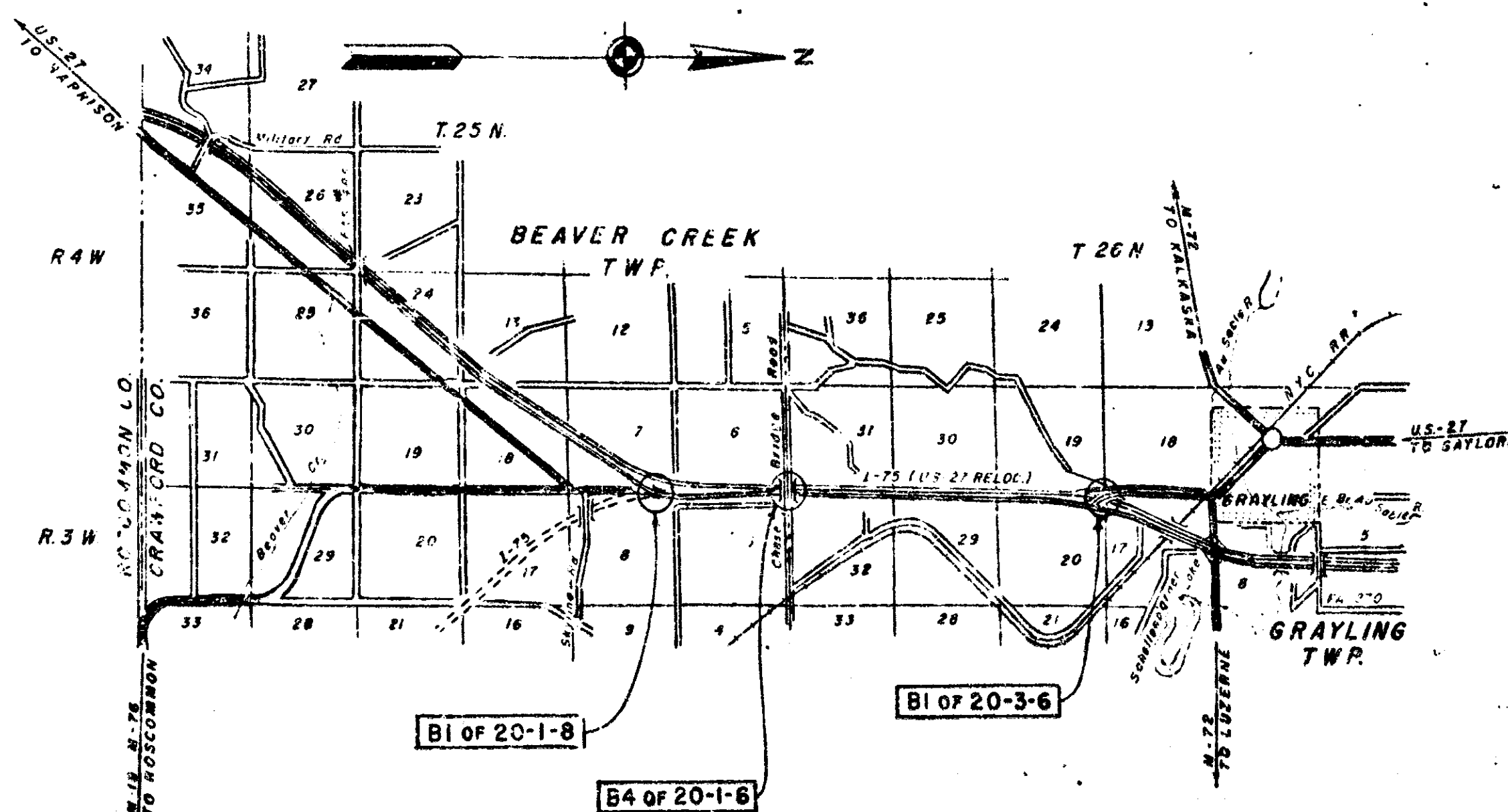
The design of these structures is based on the Michigan State Highway Department's Specifications for the Design of Highway Bridges, 1958 Edition (H20-S16-44) and alternate Military Loading. Live load plus impact deflection = $1/1000$ of span length.

The character of all materials and the extent thereof as shown by borings has been obtained by methods and from sources believed to be reliable. The exactness of this information is, however, in no case guaranteed. Boring data is available in the Design Office at Lansing.

All exposed concrete corners shown square on the Plans shall be beveled with 1/2 inch triangular molding, except as otherwise noted.

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12	STEEL REINFORCEMENT DETAILS

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LOCATION SKETCH
SCALE 1" = 1 MILE

SHEET NO.	TITLE
SP2C	STANDARD SLOPE PAVING DETAILS

[illegible]

NOTE
Where items listed under "Standard Plans" are called for on the plans, they are to be constructed according to the Standard Plan over which operates each item, unless otherwise indicated.

CONTROL NUMBER NO. 20014 RN	
CONTRACT FOR _____	
DIVISION APPROVAL	
CHECKED <u><i>W.C. Jones</i></u> _____ RECOMMENDED <u><i>W.C. Jones</i></u> FOR APPROVAL _____ _____ RECOMMENDED <u><i>W.C. Jones</i></u> FOR APPROVAL _____	DATE _____ DATE _____ DATE _____
_____ ENGINEER OF DESIGN _____ TRAFFIC ENGINEER _____ _____ ENGINEER OF BRIDGE & ROAD DESIGN	
OFFICES of DESIGN & CONSTRUCTION	
APPROVED _____ _____ APPROVED _____ _____	DATE _____ DATE _____
_____ CONSTRUCTION ENGINEER _____ CHIEF DESIGN ENGINEER	
STATE HIGHWAY DEPARTMENT APPROVAL	
APPROVED JOHN C. MACKIE STATE HIGHWAY COMMISSIONER	DATE _____
BY _____ _____ DIRECTOR OF ENGINEERING - CHIEF ENGINEER	DATE _____
PLANS PREPARED BY MICHIGAN STATE HIGHWAY DEPARTMENT	<div style="text-align: center;"> DEPARTMENT OF COMMERCE BUREAU OF PUBLIC ROADS </div> <div style="text-align: center; margin-top: 20px;"> APPROVED _____ DIVISION ENGINEER </div>

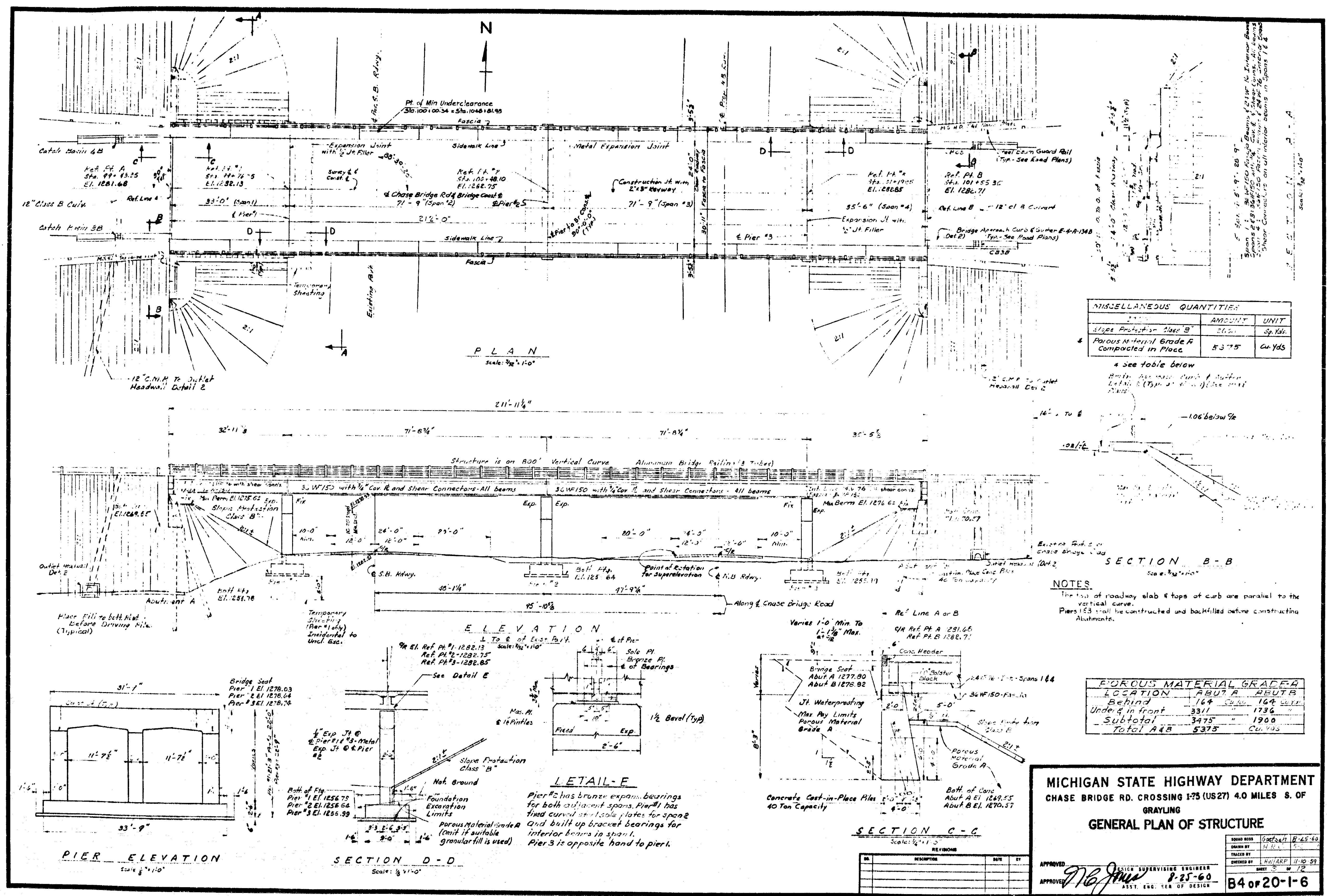
Blor 20-1-8, 24-20-1-6, Blor 20-3-6

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SQUAD BOOK	Geetsch	8-25-60
DRAWN BY	Benson	9-10-59
TRACED BY		
CHECKED BY	W. J. ARP	11-10-59
SHEET 2 OF 12.		

B4 of 20-1-6

402 OF 20214 KN



MISCELLANEOUS QUANTITIES

ITEM	AMOUNT	UNIT
Slope Protection Class B	50.00	Sq. Yds.
Porous Material Grade A Compacted in Place	53.75	Cu. Yds.

NOTES

The top of roadway slab & tops of curb are parallel to the vertical curve.

Piers 1 & 3 shall be constructed and backfilled before constructing Abutments.

POROUS MATERIAL GRADE A

LOCATION	ABUT A	ABUT B
Behind	164	164
Under & in front	331	1736
Subtotal	3475	1900
Total A&B	5375	Cu. Yds.

MICHIGAN STATE HIGHWAY DEPARTMENT
CHASE BRIDGE RD. CROSSING I-75 (US27) 4.0 MILES S. OF GRAYLING

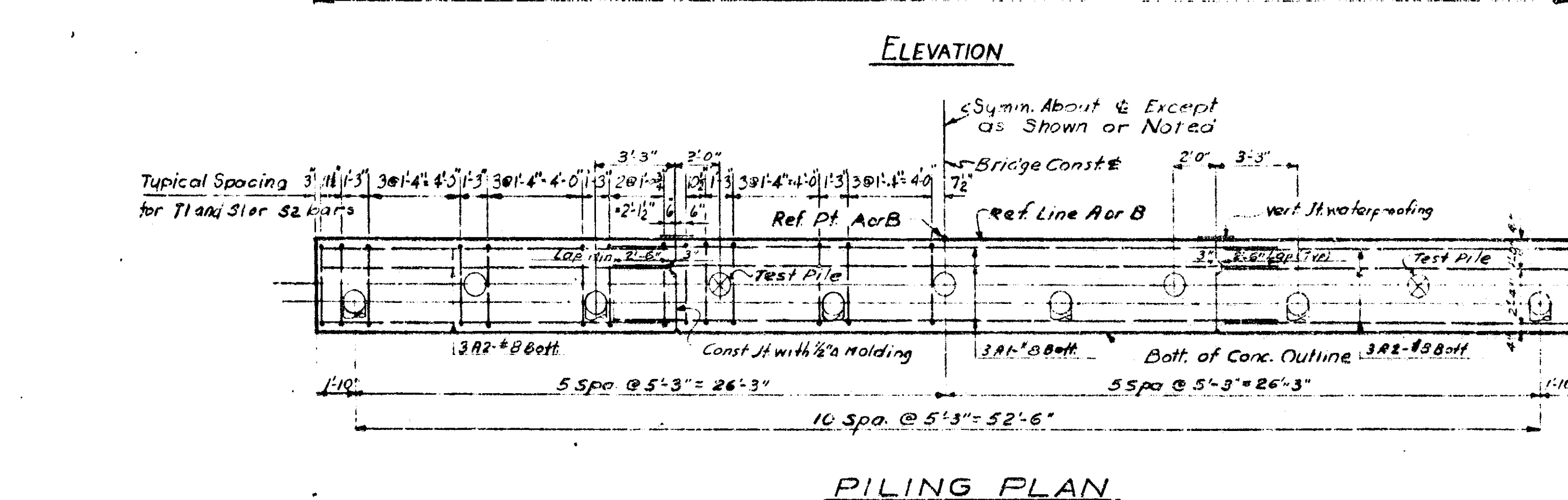
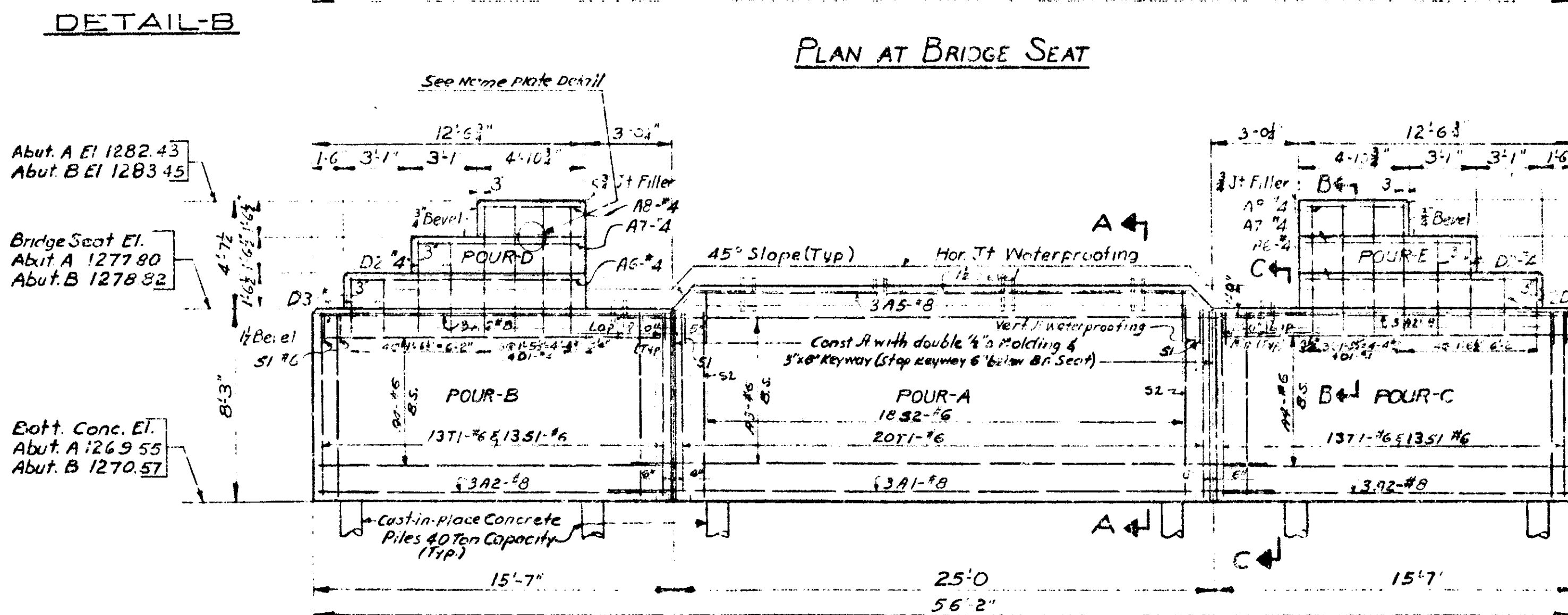
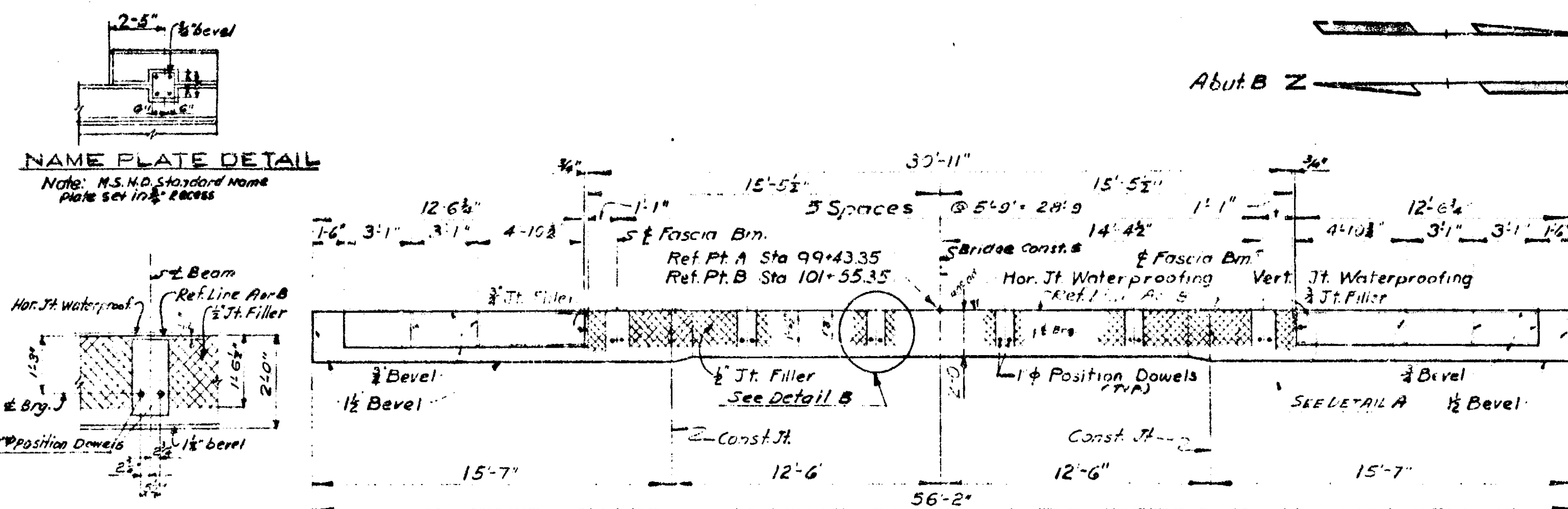
GENERAL PLAN OF STRUCTURE

APPROVED: *[Signature]* 8-25-60
DESIGN SUPERVISING ENGINEER
ASST. ENG. SEN. OF DESIGN

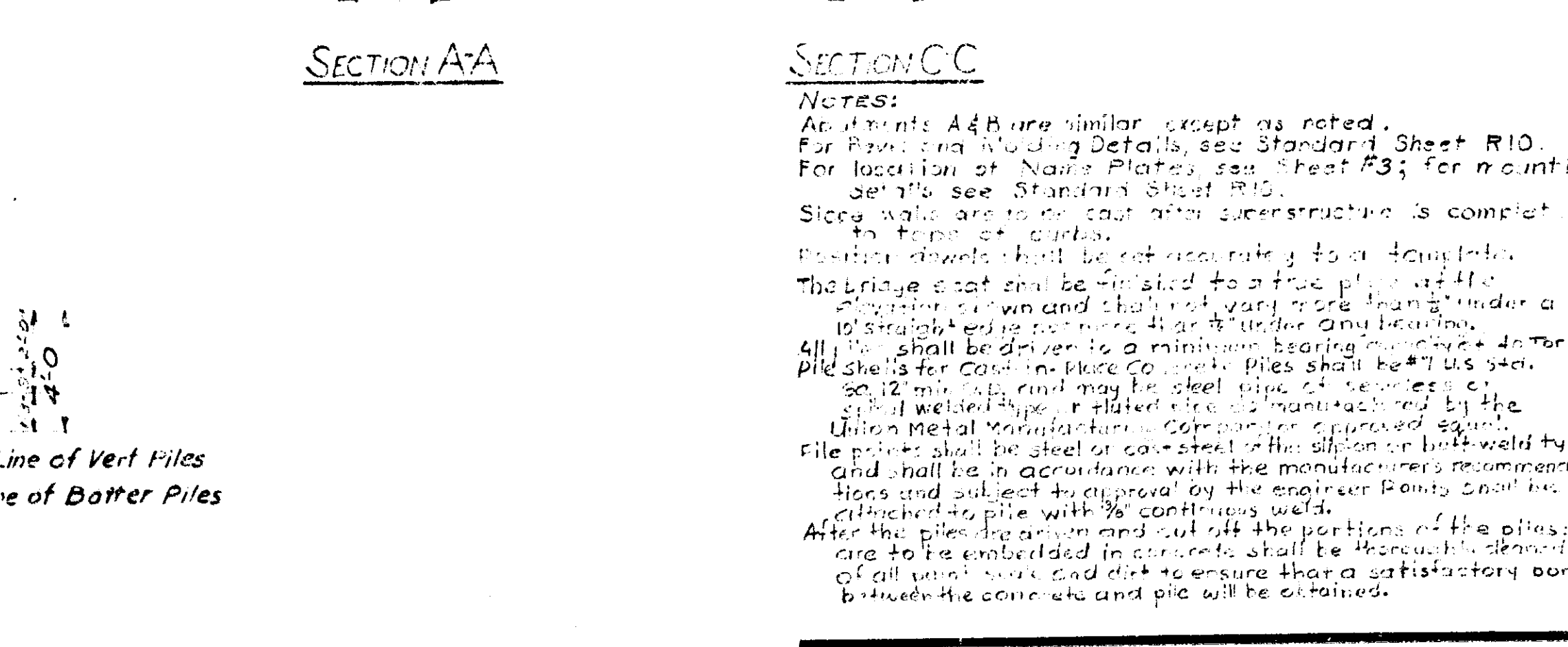
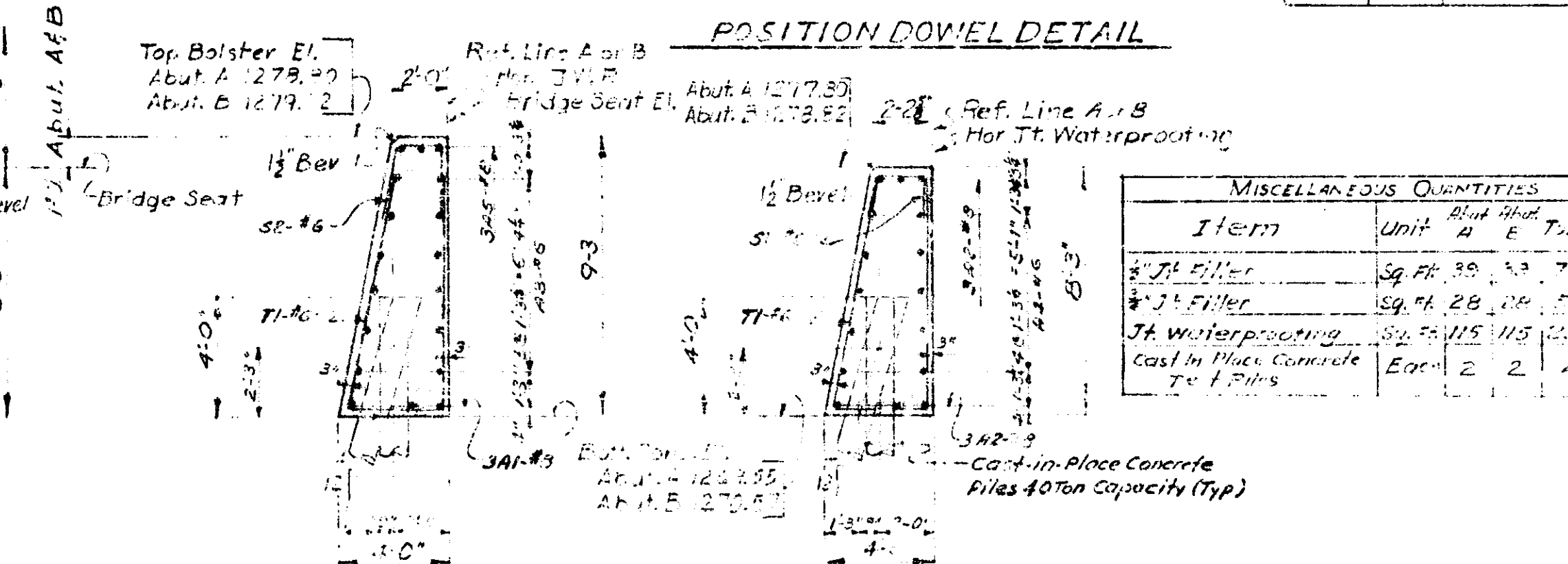
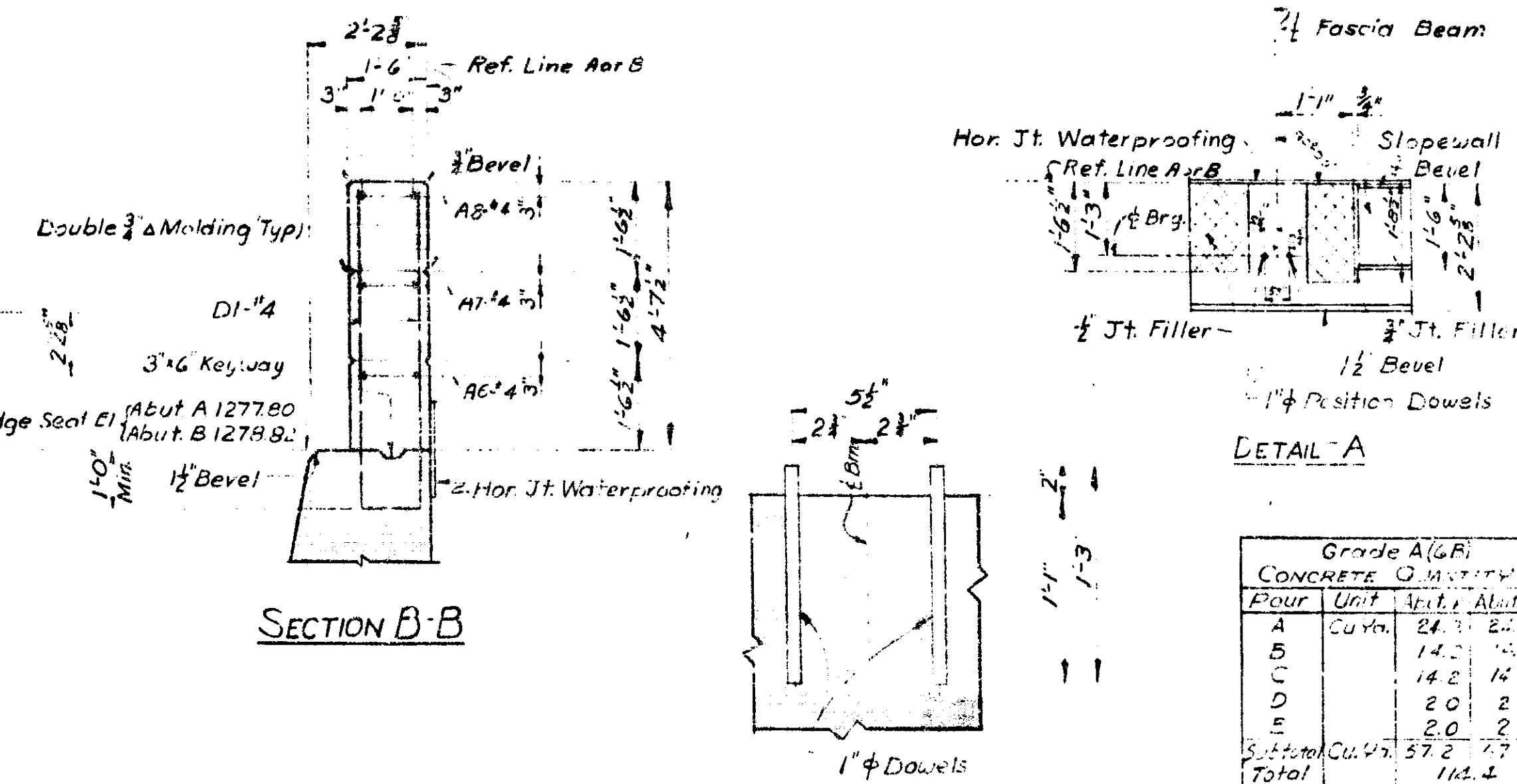
REVISIONS:

NO.	DESCRIPTION	DATE	BY

84 or 20-1-6



PILE QUANTITIES						
12 Min. O.D. Cast-in-Place Concrete Piles 40 Ton Min. Bearing Capacity						
Location	Number Reg'd	Estimated Length-Unit	Estimated Length-Unit	No. of Cut-off	Estimated Length-Unit	
		Furnished	Driven	Each	Each	
Abut. A	Vertical	3	90	28	24	3
	Butler	6	30	180	168	6
	Test	2	32	76	28	56
Abut. B	Vertical	3	26	78	24	72
	Butler	6	26	156	24	144
	Test	2	34	68	24	48
Totals		22	248	772	222	

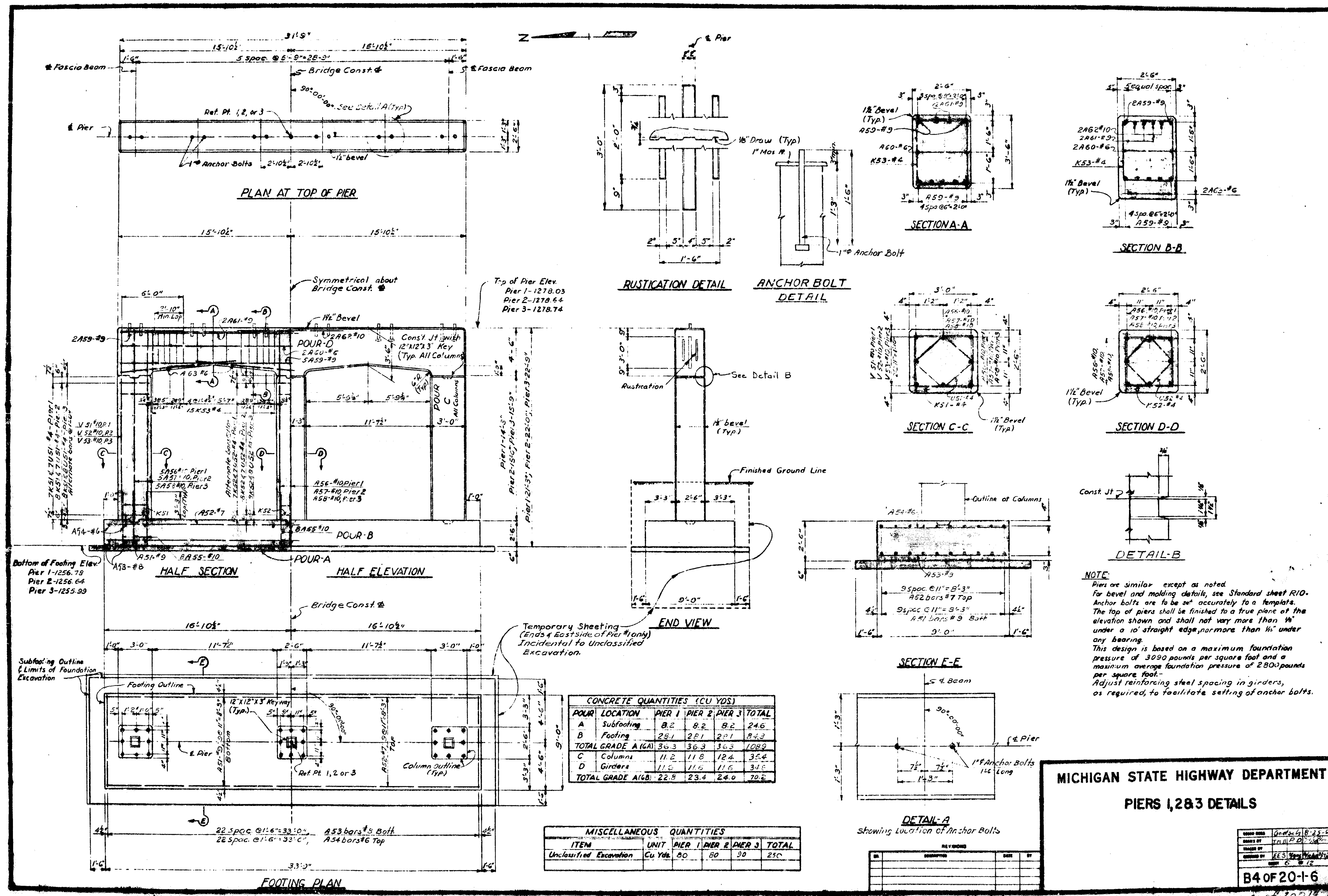


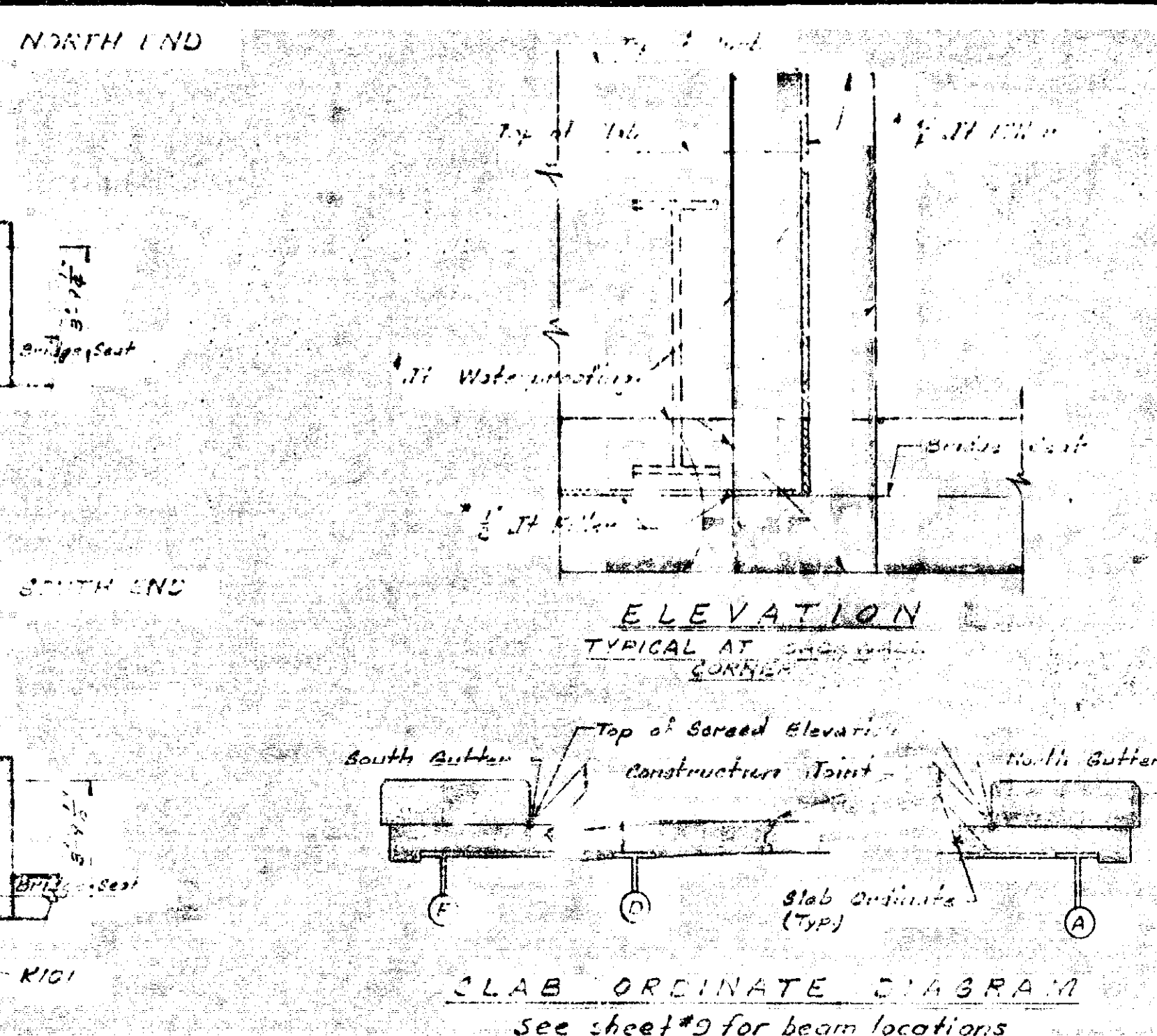
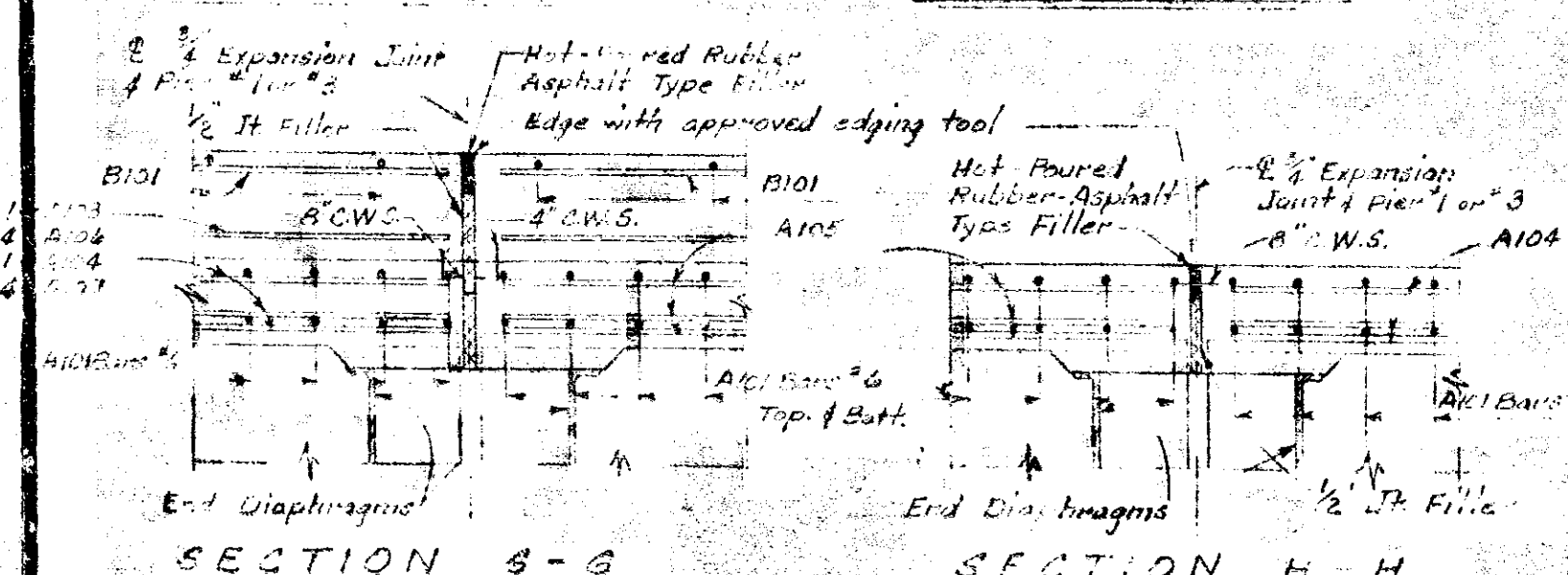
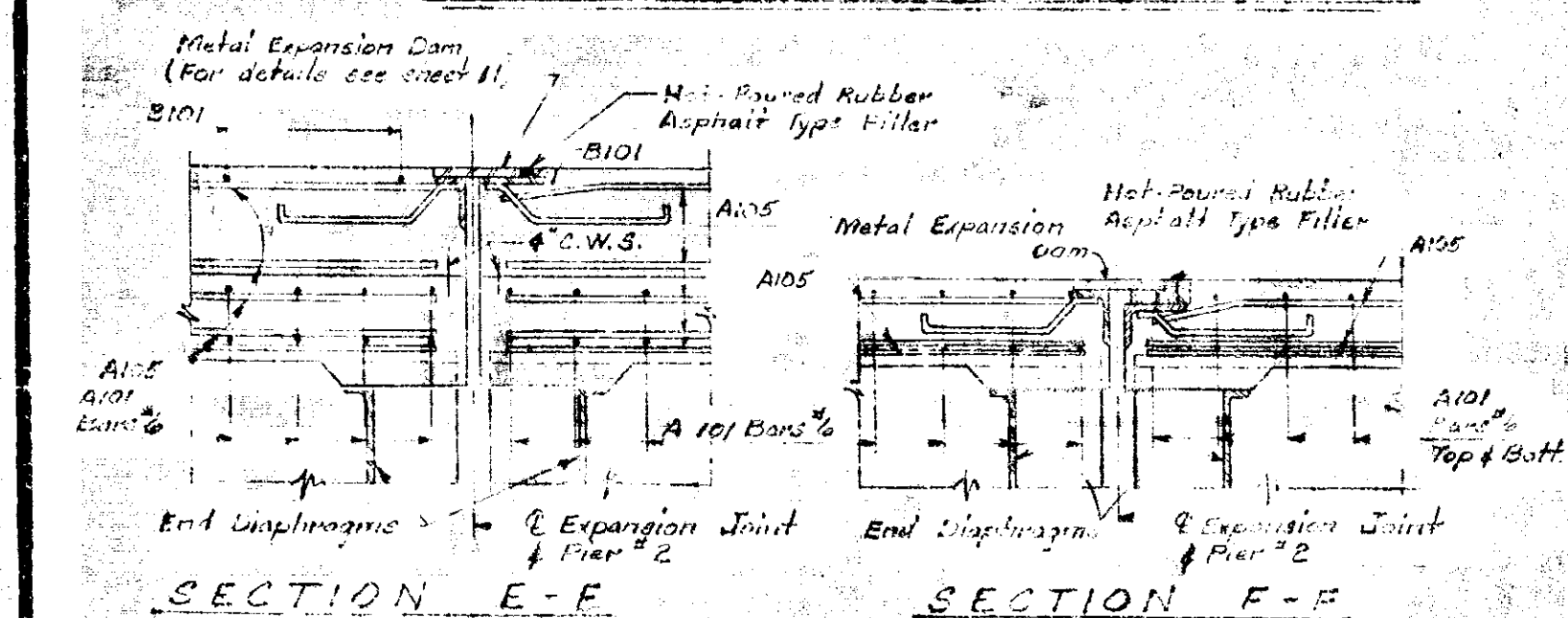
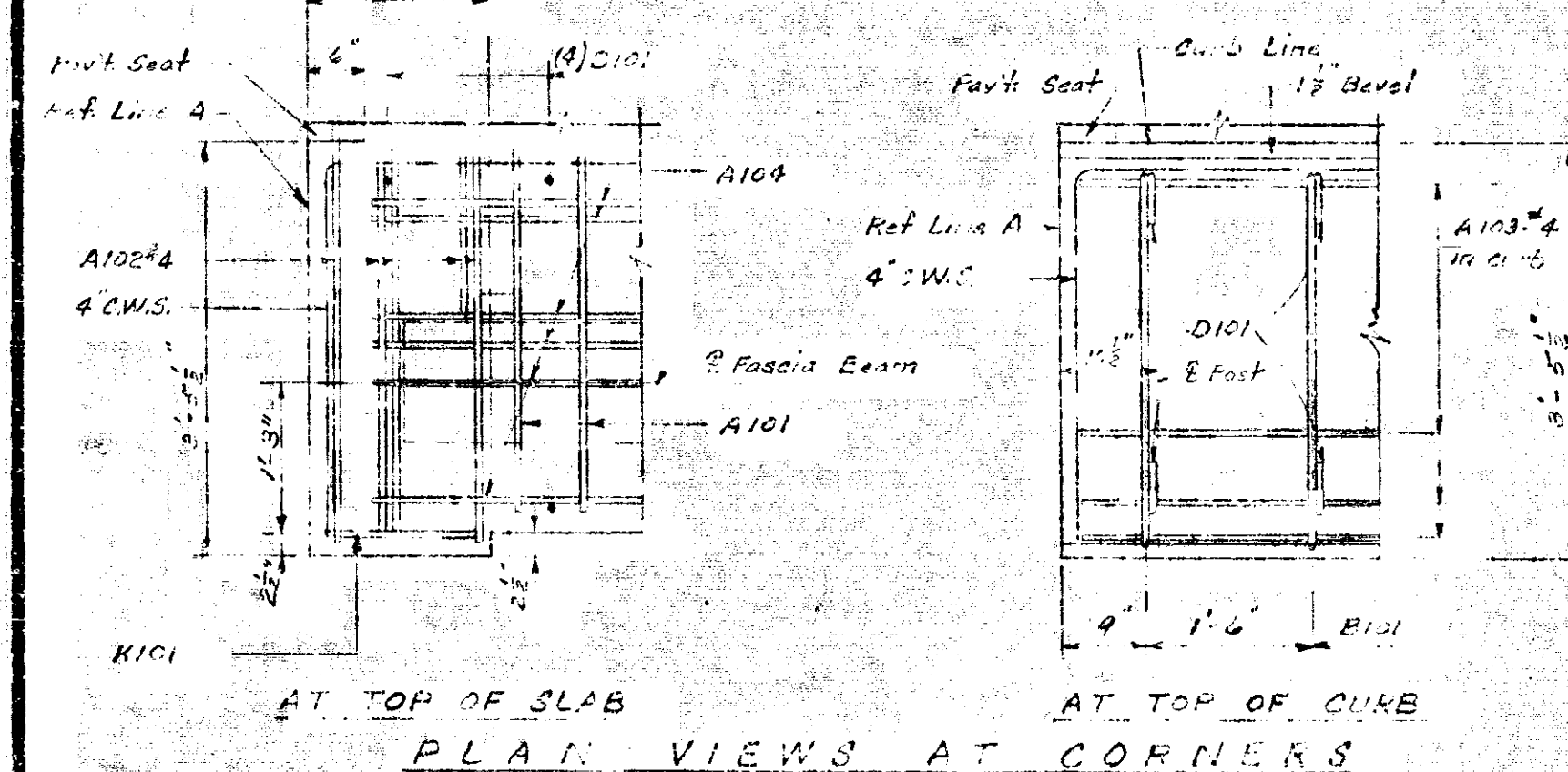
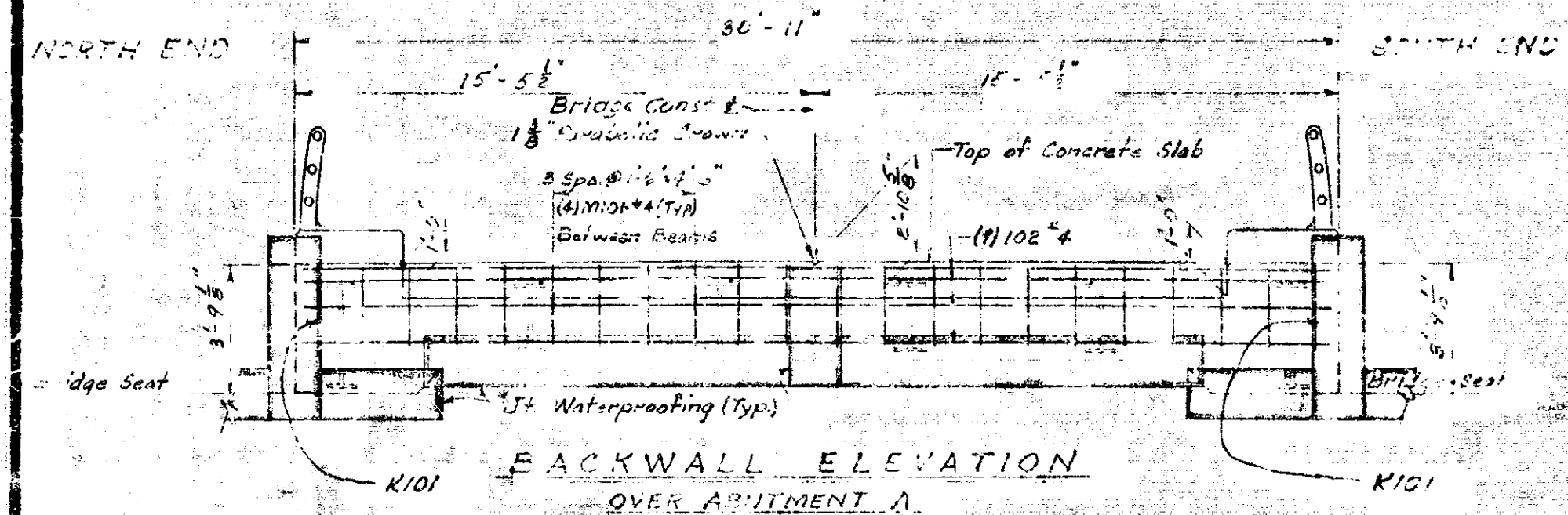
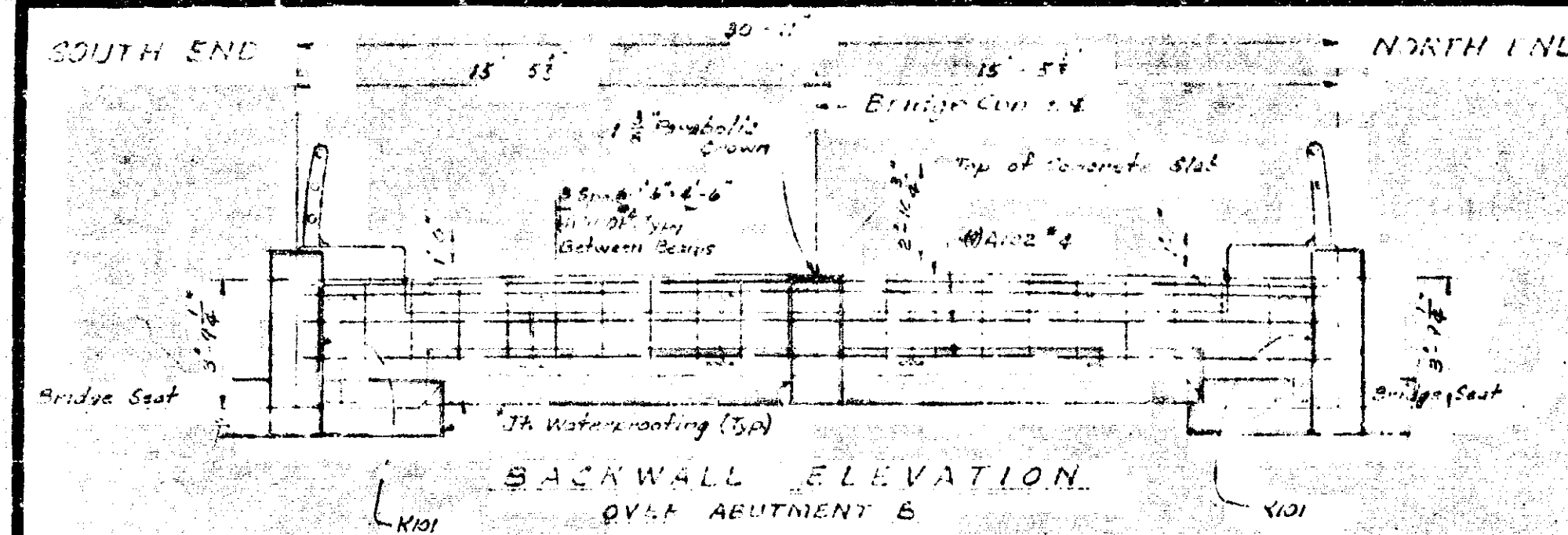
MICHIGAN STATE HIGHWAY DEPARTMENT ABUTMENT A & B DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

DESIGNED BY	Checked by	DATE	BY
DRAWN BY	AM		
TRACED BY			
CHECKED BY			
DATE			

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MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMOUNT
1/2" Joint Filler	Sq. Ft.	47
Hot-Poured Rubber Asphalt Type Filler	Sq. Ft.	15
Copper	Lbs.	28
Aluminum Bridge Railings Fabrication 1/2" x 3/4" x 1/2"	Lin. Ft.	42.4



NOTES: Elevations shown are for top of screed before pouring any superstructure concrete and are based on a minimum slab thickness of 7". After screeds are set, if check indicates less than minimum slab thickness will be obtained, adjust screeds and expansion dams accordingly to provide the minimum required. The slab ordinates shown provide for dead load deflection, vertical curve, crown, and beam camber, and are to be measured from the top of the beam indicated (on a line parallel to the reference lines) to the top of the screed.

SLAB THICKNESSES AND SCREED ELEVATIONS

CONCRETE QUANTITIES GRADE A (6B)					
Location	Span 1	Span 2	Span 3	Span 4	Total
N. curb	4.4 Cu. Yds.	9.5 Cu. Yds.	9.5 Cu. Yds.	4.7 Cu. Yds.	28.1 Cu. Yds.
Slab	14.4 "	29.8 "	29.8 "	15.2 "	89.2 "
S. curb	4.4 "	9.5 "	9.5 "	4.7 "	28.1 "
roadways	0.5	0	0	0.5	1.0 "
TOTAL					235.6 Cu. Yds.

Notes: Sidewalk pours shall not be cast until slab concrete has attained at least 50% of its design strength as determined by the table in Section 5.01.05 of the Standard Specifications. These items are included in total quantities on Abutment sheets.

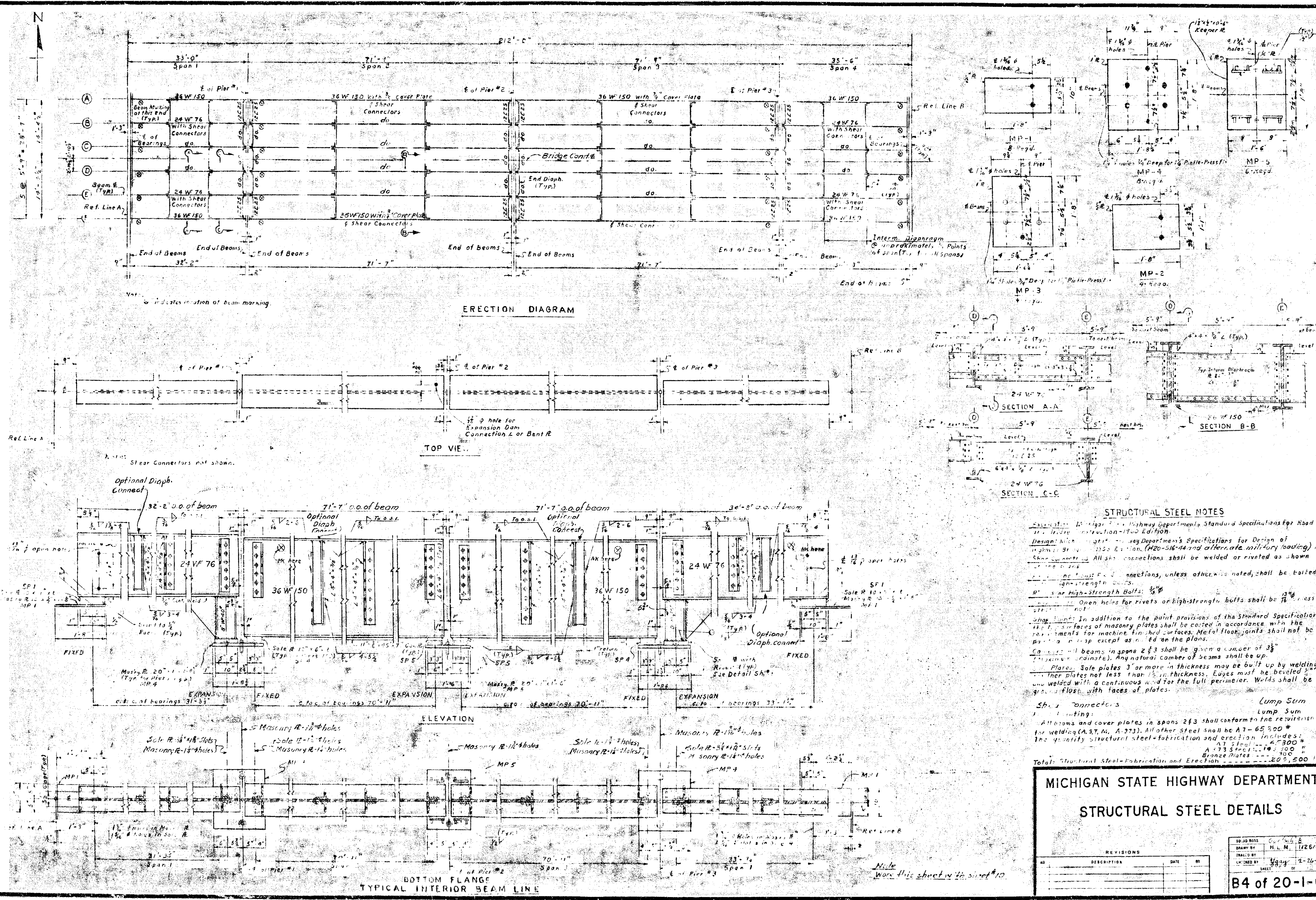
Work this sheet with sheet #7

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DRAWN BY: J.P. 1-15-60
 CHECKED BY: P.D. 1-15-60
 SHEET: 12 OF 12
B4 OF 20-1-6



STRUCTURAL STEEL NOTES

1. Fabrication shall conform to Michigan Highway Department's Standard Specifications for Road and Bridge Construction - 1960 Edition.

2. Design shall conform to Michigan Highway Department's Specifications for Design of Highway Bridges - 1950 Edition, (MSD-516-44 and other applicable loadings).

3. Connections: All steel connections shall be welded or riveted as shown on the plans.

4. Rivets: All rivets shall be high-strength bolts, unless otherwise noted, shall be coated with zinc-chrome.

5. Open holes for rivets or high-strength bolts shall be 1/8" less than the nominal size.

6. Gages: In addition to the provisions of the Standard Specifications, the surfaces of masonry plates shall be coated in accordance with the requirements for machine finished surfaces. Metal floor joints shall not be painted on top except as noted on the plans.

7. Camber: All beams in spans 2 & 3 shall be given a camber of 3/8" (maximum ordinate). Any natural camber of beams shall be up.

8. Plates: Sole plates 3" or more in thickness may be built up by welding other plates not less than 1/2" in thickness. Edges must be beveled and welded with a continuous weld for the full perimeter. Welds shall be ground flush with faces of plates.

Steel Connectors

Lump Sum

1. All items and cover plates in spans 2 & 3 shall conform to the requirements for welding (A-37, M. A-373) All other steel shall be A-7 - 65,500 #

2. The quantity structural steel-fabrication and erection includes:

A-7 Steel - 4,300 #

A-37 Steel - 14,300 #

Brace Plates - 300 #

Total: Structural Steel-Fabrication and Erection - 20,500 #

MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

REVISIONS

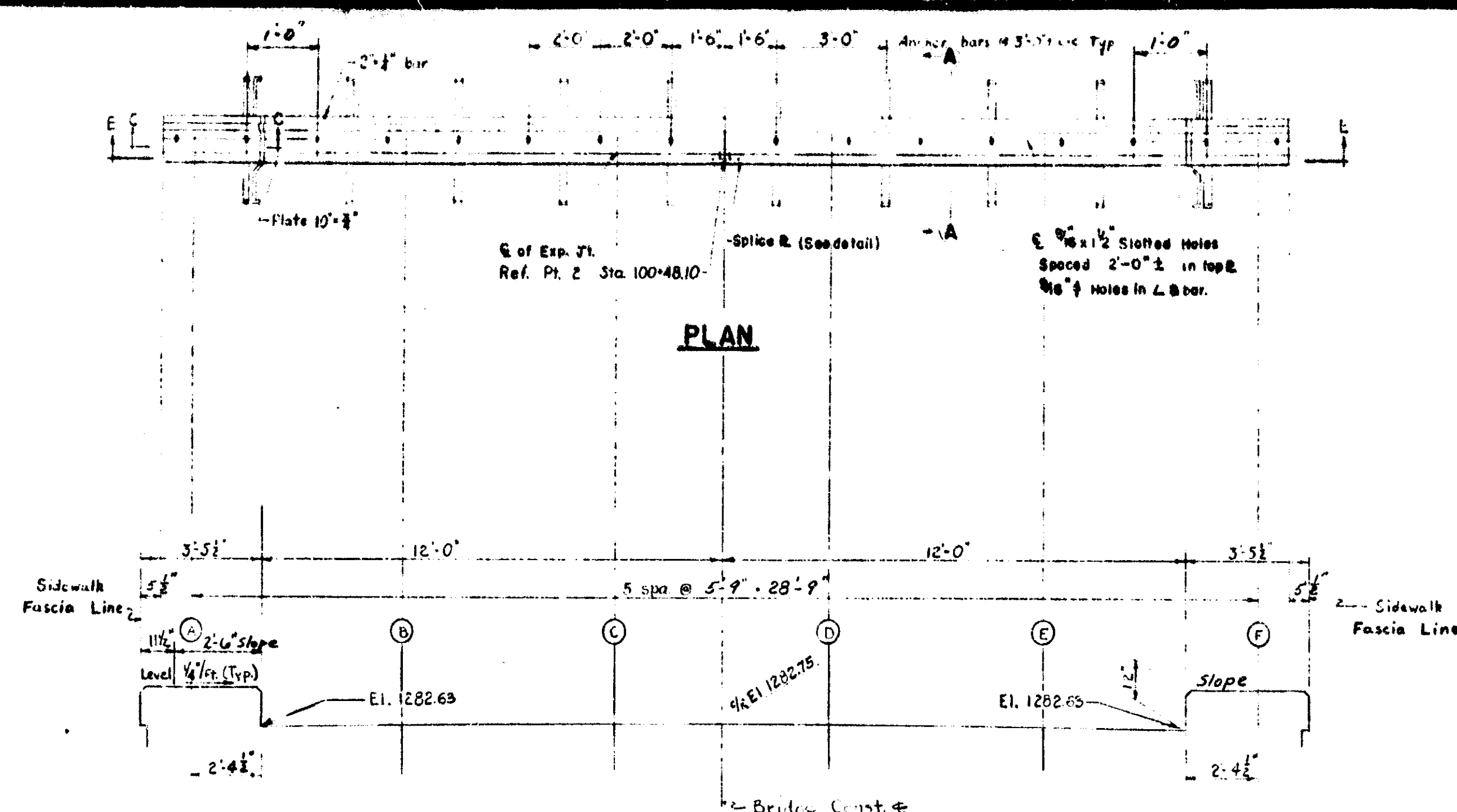
NO.	DESCRIPTION	DATE	BY

20-10-1-6

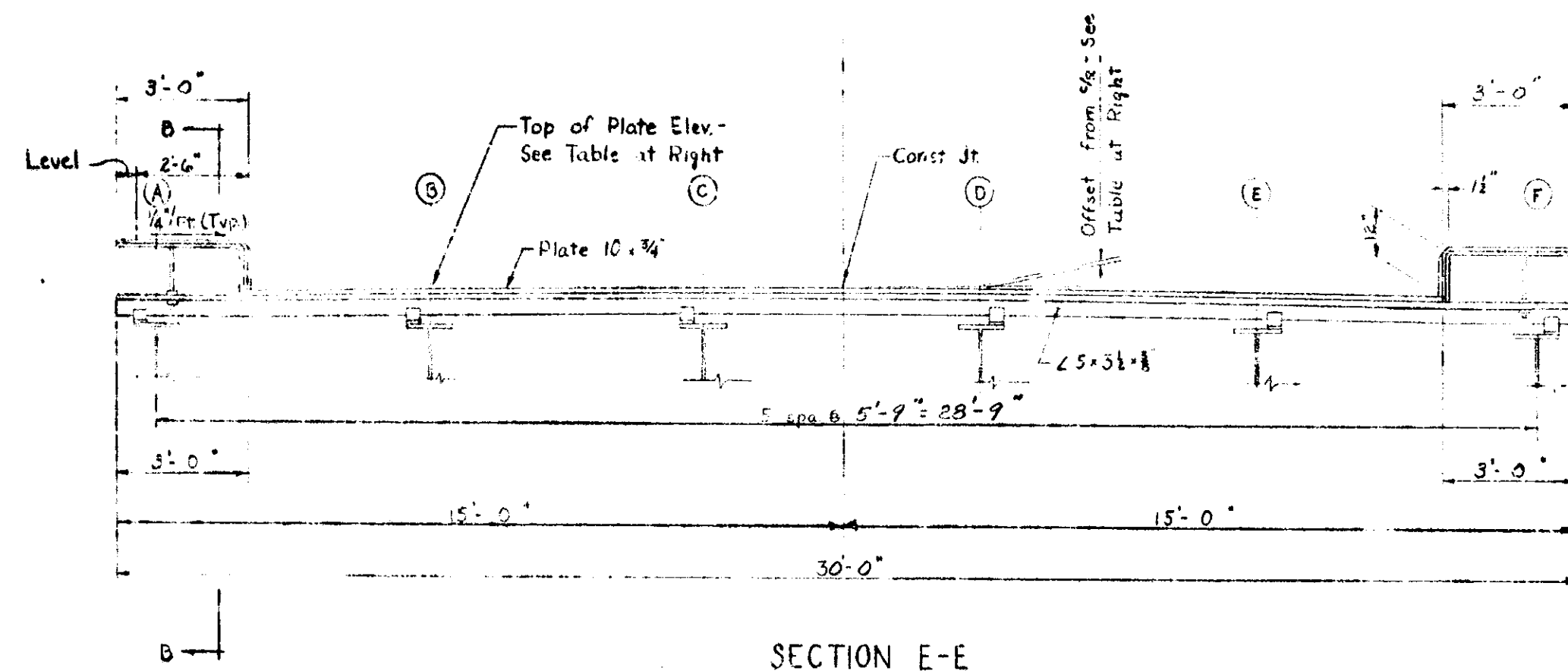
1/26/60

1-20-60

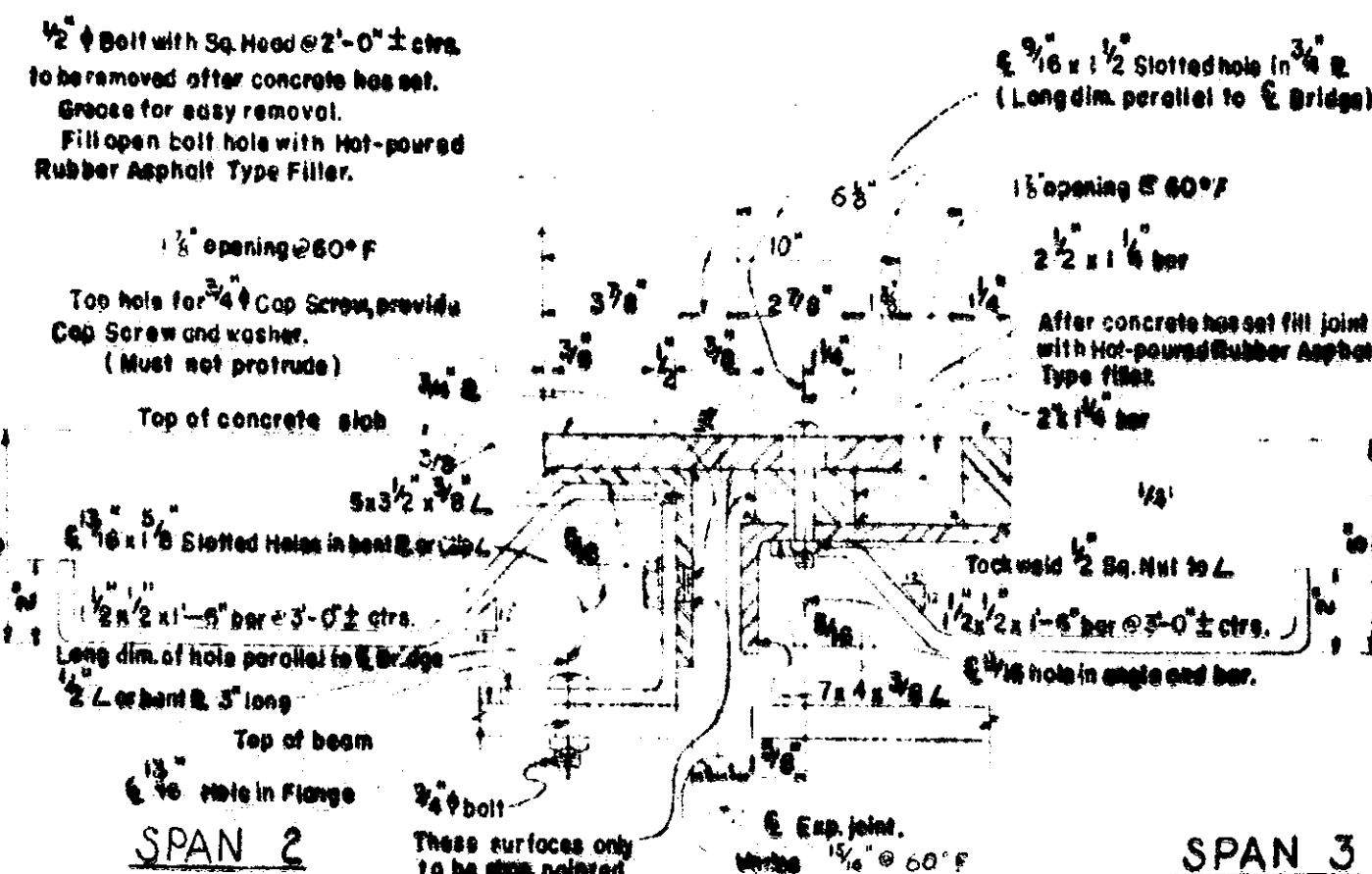
B4 of 20-1-6



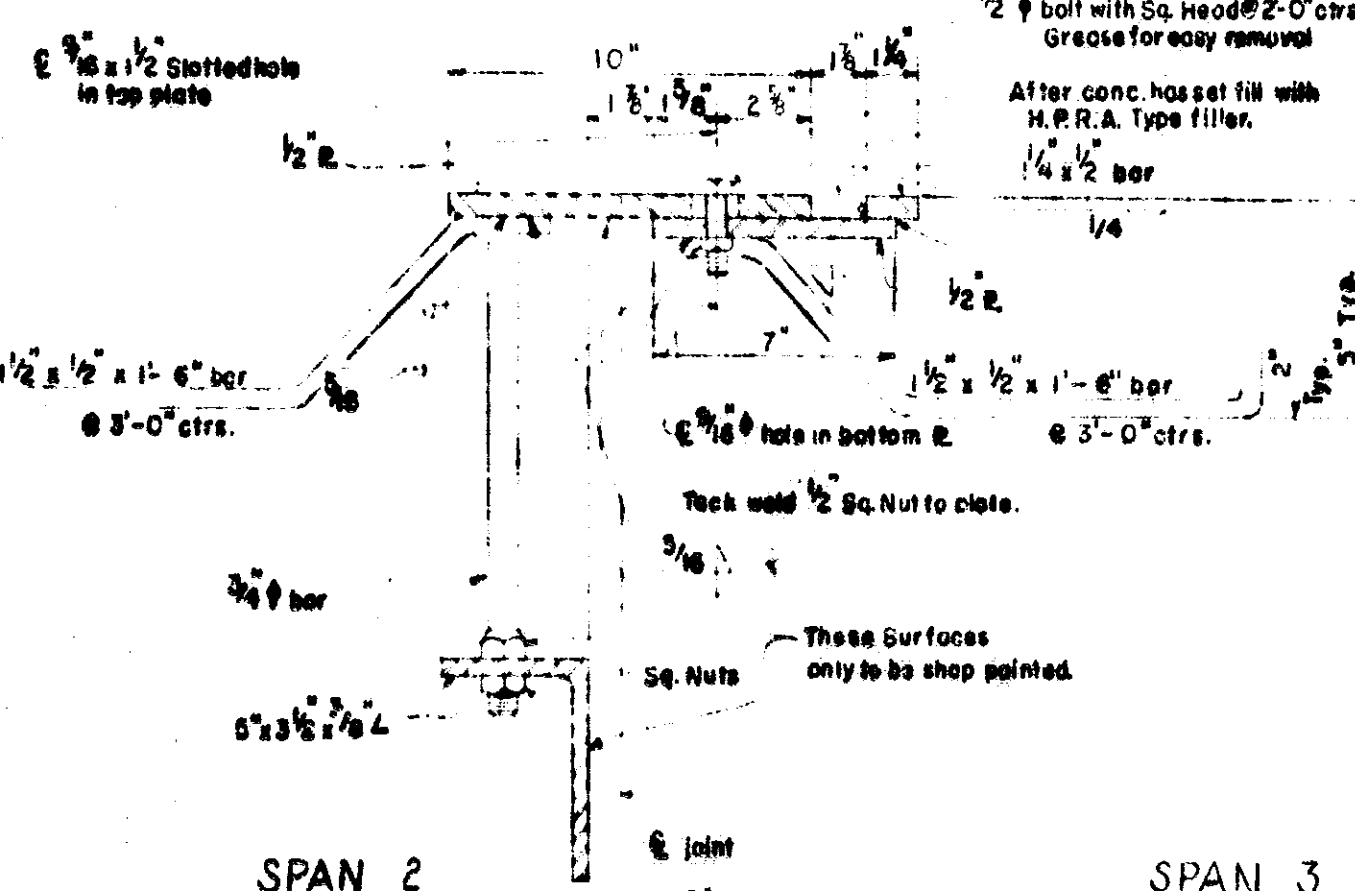
TYPICAL ROADWAY SECTION
NORMAL TO C OF BRIDGE LOOKING EAST



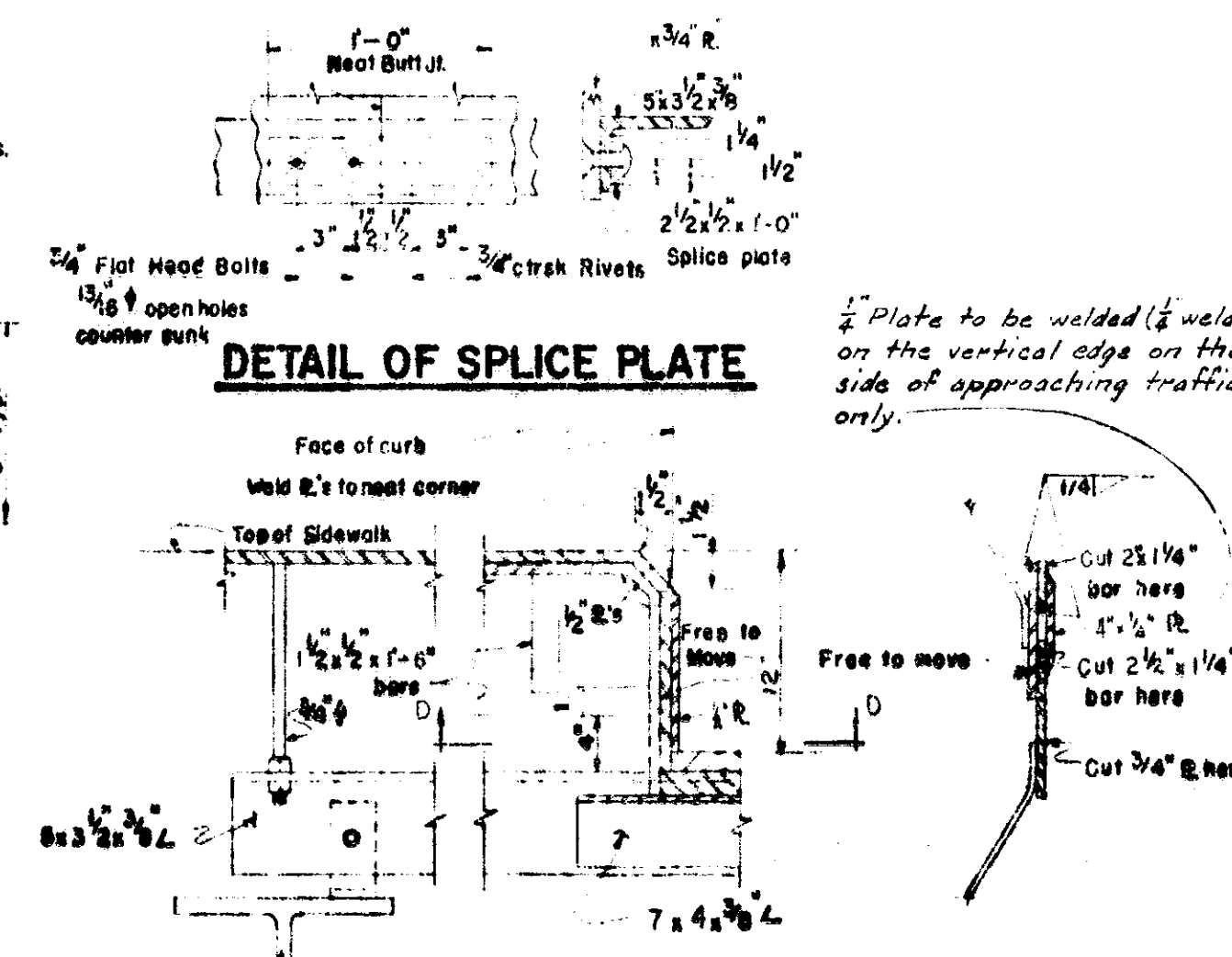
SECTION E-E



SECTION A-A



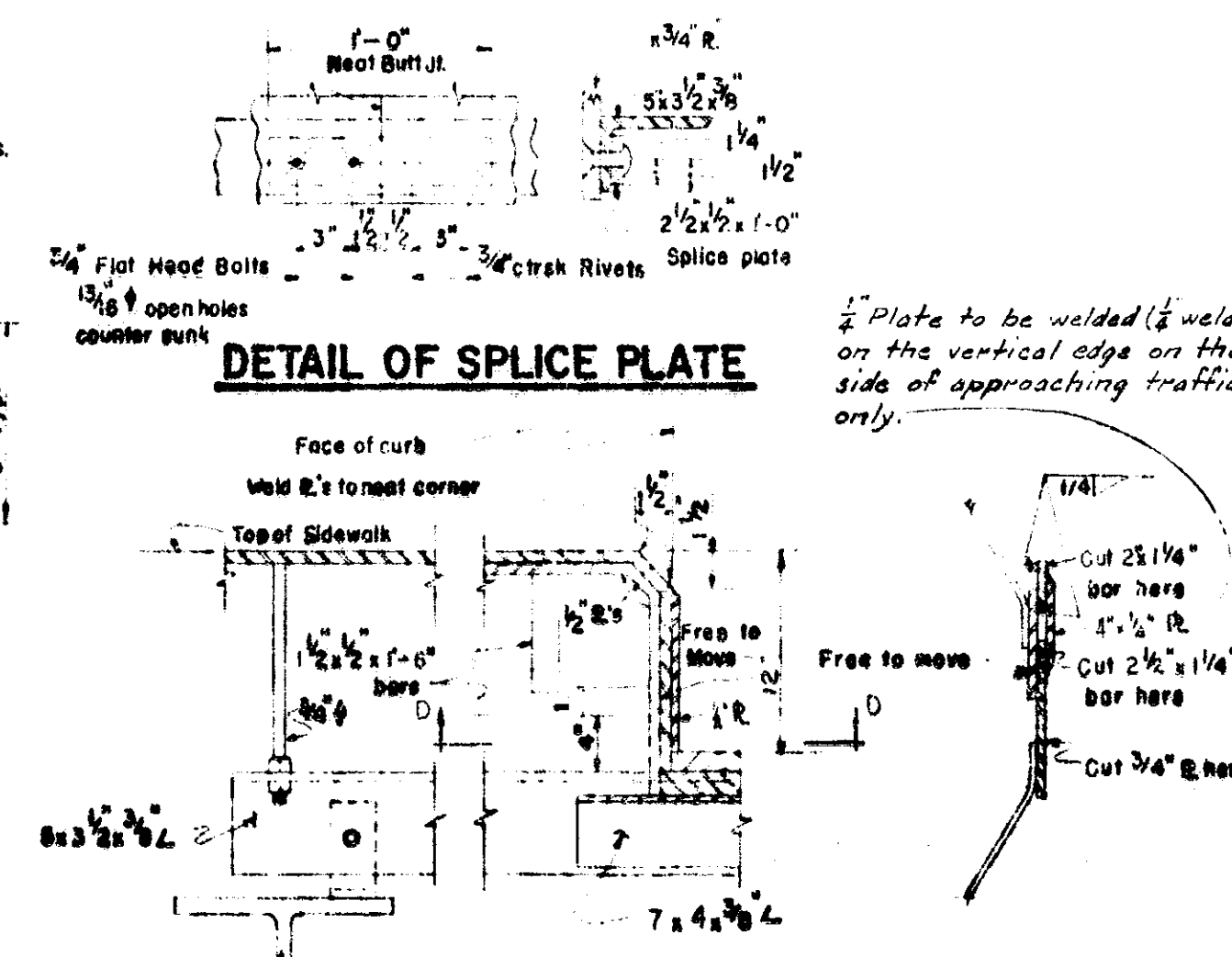
SECTION B-B



SECTION C-C

SECTION D-D

Location @ Beam	Elev. @ Top of Conc. & Plate	Vert. Offset from GA	Elevation @ Top of Girder
Walk A	1282.63	-	1281.94
N. Gutter	1282.63	1/8"	-
B	1282.75	3/8"	1281.94
C	1282.74	1/2"	1282.04
Bridge @ GA	1282.75	0"	-
D	1282.74	3/8"	1282.04
E	1282.75	1/2"	1281.94
S. Gutter	1282.63	1/8"	-
Walk F	1282.63	-	1281.94



DETAIL OF SPICE PLATE

MICHIGAN STATE HIGHWAY DEPARTMENT EXPANSION DAM DETAILS

NO.	REVISIONS	DATE	BY
1	DESIGNED BY	8-25-64	
2	DRAWN BY	8-25-64	
3	CHECKED BY	8-25-64	
4	APPROVED BY	8-25-64	

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303 OF 2007-1-6

Balanced by: ADM 4-11-62
Checked by: HWG 4-12-62